

REMARKS/ARGUMENTS

Claims 1-36 and 39-43 are pending in this application. Claim 1 has been amended to more clearly describe applicants' claimed effect pigments. The claim amendments are all entirely supported by the application as originally filed. In particular, the amendment reciting that the thickness of the enveloping layer is "50-300 nm" is supported by the teaching at p. 8, lines 31-34. The amendment reciting that the at least one metal chalcogenide layer is a colored metal chalcogenide layer is supported by, *inter alia*, original claim 13. Claim 13 has, accordingly, been canceled from the application without prejudice or disclaimer since its subject matter is now included in claim 1.

Further, the amendment regarding the weak color flop of the claimed pigments is supported by the teaching found at p. 10, lines 1-2 of the specification as filed.

The claim amendments thus raise no issue of new matter and their entry is therefore respectfully requested. Upon entry of this Amendment, claims 1-12, 14-36 and 39-43, as amended, will be pending in the present application. Reconsideration of the amended claims is earnestly solicited.

Rejection Under 35 U.S.C. §103

In the present Office Action the Examiner continues to maintain the rejection of claims 1-36 and 39-43 under 35 U.S.C. §103 over USP 5,624,486 to Schmid et al. in view of USP 6,648,957 to Andes et al. The rejection is respectfully traversed.

In response to the above-identified rejection as initially set forth in the Office Action mailed March 18, 2008, applicants filed on September 17, 2008 an Amendment accompanied by an evidentiary Declaration Under 37 C.F.R. §1.132 of Dr. Frank Henglein, a co-inventor of the present application. Briefly summarized in a non-limiting fashion, the Amendment and accompanying 1.132 Declaration of Dr. Henglein pointed out that there is a significant difference in both the structure and the appearance of the pigments produced in accordance with the chemical wet process oxidation method recited for use in applicants' claim 1, versus those produced via a wet chemical coating process as taught in the Schmid et al. reference relied upon in rejecting applicants' claims. This difference was illustrated with the use of photomicrographs

attached as exhibits to the declaration of Dr. Henglein. It was further submitted, moreover, in the Henglein declaration, that the structural differences so demonstrated result in significant differences in the properties, i.e., the 'color flop' exhibited by the two different pigments, whereupon the presently claimed pigments exhibit a soft color flop whereas the pigments formed according to the prior art Schmid et al. reference demonstrated, in contrast, a strong color flop.

In the Response to Arguments, however, set forth at p.3 of the present Office Action (dated December 21, 2008), the Examiner raises several objections regarding the evidence provided in the Henglein declaration, chief among which appears to be her determination that the declaration is not commensurate with the scope of the claims.

In response to the Examiner's findings (as set forth at pp. 2-4 of the Office Action) applicants have herein amended claim 1 of their application, as indicated above, such that the subject claim now includes a recitation of several features which assist in distinguishing the presently claimed effect pigments from those disclosed in the Schmid et al. reference relied upon to reject applicants' claims. In particular, claim 1 as amended now (additionally) recites *inter alia* that (1) the effect pigments have a weak color flop having a $\Delta H^*_{\text{anchor}}$ in a range of between 1.5 and 50; (2) the at least one metal chalcogenide layer is a colored metal chalcogenide layer; and (3) that the aluminum oxide-containing or the aluminum oxide/hydroxide-containing enveloping layer has a thickness limited to from 50-300 nm.

Claim 1 as amended is thus directed to effect pigments having an aluminum core or aluminum alloy core and an aluminum oxide-containing or aluminum oxide/hydroxide-containing layer enveloping said aluminum core or aluminum alloy core, obtained by chemical wet-process oxidation of lamellar aluminum pigments or aluminum alloy pigments, the content of metallic aluminum in the aluminum core or aluminum alloy core being not more than 90 % by weight, based on the total weight of the pigment, characterized in that the oxidized aluminum pigments or aluminum alloy pigments exhibit at least one highly refractive metal chalcogenide layer having a refractive index of > 1.95 , the at least one metal chalcogenide layer being a colored metal chalcogenide layer, and a mixed layer is formed between the highly refractive metal chalcogenide layer and the enveloping aluminum oxide-containing or aluminum oxide/hydroxide-containing layer, wherein the aluminum oxide-containing or aluminum oxide/hydroxide containing

enveloping layer has a thickness of from 50 - 300 nm, wherein the effect pigments have a weak color flop having a $\Delta H^*_{\text{anchor}}$ in a range of between 1.5 and 50.

The color flop aspect was discussed in the 1.132 declaration filed with the previous response. Furthermore, applicants have herein supplemented the previously-filed declaration with a "Second §1.132 Declaration of Dr. Frank Henglein" filed as an Attachment to this Amendment, wherein the enclosed Declaration discusses all of the distinguishing features identified above. Thus the evidentiary showing provided in the declaration provided herewith is entirely commensurate with the description of applicants' effect pigments as found in the presently amended claims. The contents of both the original declaration and the supplemental declaration are, moreover, specifically incorporated by reference into this Amendment by reference thereto.

Entry and consideration of (1) the claim amendments proposed herein and (2) the supplemental declaration, is respectfully requested in light of the fact that applicants are filing with the present response a Request for Continued Examination ("RCE") of the present application, with the appropriate fee.

Further to the matters discussed in the declaration(s) and particularly in the supplemental declaration provided with this response, with regard to the provision of a colored metal chalcogenide layer in the presently claimed effect pigments, applicants submit that Schmid et al. teaches (see, e.g., claim 1 of the reference) that a nonselectively absorbing metal oxide is to be applied as a second layer (b) on the pigment described in the reference. Such a non-selectively absorbing metal oxide layer absorbs white light, i.e., including the entire light spectrum. Consequently, the pigment appears dark or black (see also Schmid et al. col. 4, lines 17 and 30). Due in part to the presence of the 'black' layer (see the discussion below), the Schmid et al. pigment exhibits a strong color flop. In contrast, the colored metal chalcogenide used in forming the presently claimed effect pigments exhibits a selective absorption of the light impinging upon the pigment, wherein the complementary color is absorbed. For instance, if the green component of the light is absorbed, the pigment appears as a red pigment. Thus, in contrast to the pigments of Schmid et al. only a portion of the light spectrum is absorbed by applicants' claimed pigments. Accordingly the color flop of applicants' pigments is considered to be 'weak', as now recited in,

e.g., claim 1. It is, therefore, the combination of the wet chemically oxidized surface (i.e., with its roughened surface structure) with the utilization of the colored metal chalcogenide which produces the soft/weak color flop exhibited by the presently claimed pigments.

For the reasons set forth above, therefore, as supported by the evidence contained in the 1.132 declaration(s) of Dr. Henglein, applicants respectfully submit that the presently claimed effect pigments as recited, e.g., in claim 1, are clearly distinguishable over the disclosure contained in the Schmid et al reference. Furthermore, since Andes et al. does not supply the elements of the presently claimed invention lacking in the disclosure of Schmid et al. applicants contend that the present claims are distinguishable, as well, over the combination of Schmid et al. with Andes et al. The Examiner is, therefore, respectfully requested to reconsider and withdraw the rejection of applicants' claims under 35 USC 103 based on the combination of Schmid et al. and Andes et al.

Respectfully submitted,

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